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BREAST FED BABIES

ESTABLE TO EVADE DISEASES

11 OCT 1926
MADRAS

BY

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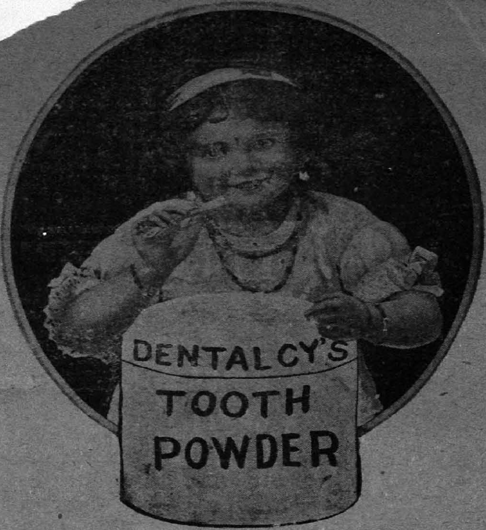

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(Sound Teeth and Health Mean Long Life)

FOR TEETH	**AGAINST TEETH**
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Hard foods	Artificial Feeding
Clean mouth & Teeth	Sweets
Healthy stomach & Bowels	Soft Food
Fruits	Acid Drugs
Butter milk	Artificial milk
Raw Vegetables	Overboiled Foods & Vegetables
Occasional Fasting	Over-eating

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GOOD HEALTH AND DENTAL WELFARE.

A monthly Journal in English for the "Care" of Body & Teeth

Edited by Dr. H. VENKAT RAO, L. M. & S.,

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Is Madras City a Death-Trap?

"Madras City is a 'Death Trap' to moffusilitis', said the late Dr. T. M. Nair and the same was brought home to us during a plain interview with a Madras Tooth patient. The patient had been ailing from Tooth ache for a week and developed a gum abcess under the cheek causing swelling of the lower eye-lid on the same side. He began arguing his case why he should suffer from Tooth ache and how his gums are affected, in as much as he uses the "best" Tooth Paste and Brush, is strict in his "diet" and is free from any body diseases, taking almost daily Huxley's Nerve-Vigour to strengthen his weak nerves. In fact that is the way how almost every Madrasee—of course we mean "educated"—lives or fares and suffers with one or more ailments. It is no wonder then that the City Death rate is steadily and surely increasing from 29 to 42 in 10 years which must surely indicate the truth of the remarks made by the late Dr. Nair. Yet the ill-health and daily sufferings cannot be easily gauged but are surely and steadily becoming worse and worse. The city corporation are however fiddling when the whole city is on "fire" and Health officers come and go, and sanitary and health measures are being ushered in with all energy. What with the gigantic water and sewerage systems of Dr. Macdonald, what with the malarial or mosquito researches of Major Russel, what with the bold experiments on life and death by Mr. Madelly with his mixture of filtered and crude water supply, what with the gubernatorial advertisements of the advantages of "Baby welcomes" under Dr. Veerasinghe, what with the energetic and

onthusiastic supervision of sanitary and sweeping arrangements-which cost him his post-by Dr. Raghavendra Rao, Madras city remains and will remain a "Death Trap". The "black town" part of it however is a paying field for medical, and lately to dental practitioners who have established themselves like mushrooms in this part of the city, of course not affecting the increasing number of patients resorting to state, municipal and private free Hospitals and Dispensaries.

Like our perplexed Tooth patient, the lay and the professionals keep a vigilant eye on the intruding disease causing agent but fail to see or appreciate the importance of the low state of body, brain and teeth of the present day Indians, due to the absence of healthy natural influences as good and wholesome foods, pure and natural water, enough and plenty of sunlight and free air, though they see in its place bugs and mosquitoes, filth and bad sewage odour, dark and ill-ventilated house and "Maddley's mixture" of pure and chlorinated crude water, and hopelessly bad food supplies.

Part of the blame or praise must be shared by the State and the Educational, the Medical, Sanitary and Municipal authorities who have laid out unwittingly the net for the victim to fall in. The State, however, is alien, born and bred up by the tenets of western civilization and technically above blame as it cannot understand why the eastern born and bred in Eastern and tropical atmosphere suffers under blessings or curse of western civilization. Even in the west there is an awakening and heartburn for the mistake they have committed in allowing themselves to be deluged with the modern ideas of living, eating and marrying, and it is no wonder that what was not conducive to the health of body and teeth in the west will be deterimental to Indians and Tropics in a thousand times.

Those who are shapening the destinies of our children in Public Schools, are blind experts who have copied everything from the west and transplanted it in our Educational System. In their enthusiasm to vie with the western life conditions, their attempts—past and present—have been fatal to our children undergoing incarceration in public plastered buildings. Like fish, in its own element, water, the growing children have to be continually bathing in free and fresh air, night and day, whereas the students' mind is being highly exercised in dark ill-ventilated buildings at the cost of the useful and necessary growing body. The result evidently is that the mind cannot hope to grow nor strenghthen in a weak system of body, so that sooner or later, the highly exercised brain finds itself in an unhealthy body. The habit of schooling during the hottest part of the day especially after a heavy hurry bury morning meal and the inevitable sleepy state or stupor of children in schools between 10 and 1 have been highly detrimental to the digestive function or brain, or both, so that one or the other gives way sooner or later. It is no exaggeration to say that almost all children in schools especially in Madras city, are ailing with stomach troubles, weak memories or other Nervous affections as Irri-

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table temper, Brainfag and a malarial infection will turn out to become the last straw to break the "Camels' back." Stomach troubles and Nervous prostration will lead the growing children to any and every disease. In fact 95 per cent have got diseased or deformed teeth due to stomach troubles begun by Bottle feeding or induced by Schooling and 25 per cent eye or Ear defects to boot. Hence a Tagore must have been at the helm of our Educational policies as in Shantinekatan, to direct and copy what was good in ancient India and have the schools, after a morning bath and prayer, in the early morning hours when the brain like butter is stronger and capable of taking better impression of the lessons than in the hottest part of the day, the stomach and brain being also free to do the work calmly. The absence or non-compulsion of "conscience" clause crowns the materialistic influence which the God forsaken Educational system tends to formate in our Indian Nation.

It is no wonder then that orthodox people, like the Nambuduri, consider that the western Education will pollute the body and soul of their children and have withstood the onslaught of Western Education and civilization for these 100 or 150 years.

Education, being an exercise (rather exacting) of the brain, no argument is necessary to bring home the necessity of having schools in open air and in as much as very many students collect at a lesson, it is quite essential that the air surrounding the children must be constantly changing. Hence schools under trees or even on a "Pial" or Verandah are preferable to what is being had in plastered and dark rooms with the windows and doors partially or completely shut to evade noise, dust or sun. That is why most of the children in schools dose away, yawn or keep their mouth open during their class due to "air hunger" or want of enough fresh air for the brain and nervous system. Fresh and changing air is so essential to Human machine that it will stop working *i. e.* death will ensue, if it is deprived of pure air for more than 5 minutes and growing children require it in plenty. Hence Education which fail to respect the above factors is the direct cause of ill heath of our youngest children. The young seedlings removed and kept under inimical surroundings will fail to grow or flourish even if transplanted in favourable fields later on in life.

Though some of the Educational methods with defects have been copied from the west, the necessary safeguards against inimical forces have not been taken in right earnest or not at all. What medical supervision and aid, the inmates of our spacious and ventilated jails are having is refused to our future hopes of the Indian Empire. After all a half-hearted medical Inspection—so manny annas and pies for examining a pupil—have been heralded. Admitting that the medical Inspector is an expert knowing not only Medicine and Surgery but also Dentistry and Preventive science, his advice or recommendation will be often unheeded unless the parents

have faith in the stranger medical attendant and are financially better off to do the needful. It is however more ridiculous to see that theEducation in Madras and other municipalities is made compulsory, before necessary medico-dental supervision is made efficient and compulsory. Unless and until the average teacher knows something of the principles of Medicine or Medical, rather Medico-Dental, Inspection of school children, and unless the staff includes at least one paid or Honorary Medical Inspector as in Adyar National school, and unless the Medical Inspector does the work as a Philanthrophist and not for the monetary consideration alone, the benefit of Medical Inspection will be practically negative. Hence unless there is proper and adequate medical guarantee for the welfare of body and brain of school children, no school should ever be licensed to harbour children for education purpose.

Yet the mentality of medical Deparment has been fadded up to equate Health with Rupees......... Annas......and Pies......and cure of Diseases with lbs., ozs and grains of drugs. As the denomination "Medicine" implies, medical Department believe that if "medicine" is withheld, the world will abound in diseases and that administration of medicine is quite essential to prevent as well as cure diseases. Unlike the methods of "Ayurveda" meaning "a science which prolongs life", the western medical science has been grappling the question of "Health" with Drugs, Vaccines, Injection, Fumigation &c and lately by Ionic and Radium Therapy. The keeping of health by negative methods, as by withholding of foods and drugs, control of Breath and "Indriyas" *Kama, Krodha, Moha, Mada and Matsara*, curbing of "sensitive organs" and purification of "Mind and soul" &c &c are only known and practiced in India.

The latest researches in Bio-chemistry, an adjunct of western medical science, has proved beyond doubt that the results of experiments of drugs in *vitrio* may or may not hold good in the human body, since the action and secretions of body cells cannot be copied in a test tube. Hence organic drugs or substances got from animal or plant kingdom are to be preferred in administering into human body, and the inorganic compound administered will have less absorbing effect but will act as irritant and accumulate and collect in glands or organs. So Cinchona bark is perferable to inorganic quinine preparations as Sulphas which will have changed into some undissolvable body and accumulate in spleen, liver, eye and gums, irritating and inflaming and decaying them sooner or later. As is too well known to patients in Madras that malarial fever visits the house or individual almost every month, in spite of the fact they take quinine. yet Doctors, like specialist Colonel Ross, believe that patients don't take quinine as often and as long as necessary. Though the doctors may be right in most cases, there are many cases of recurring malarial fever in spite of the fact that the patient is taking quinine daily, and that in cases of malignant malarial fever, the parasite becomes invulnerable to the administration of Quinine. It

is therefore essential that the angle of vision of the drug healer must be changed, before you expect him to stop adding insult to injury.

When however the medicine or drug has done the greatest harm or good, the patient is thrown to the will and pleasure of the so called "Tonics" and proprietary "foods" which however appeal most to the patients due to the well written out and catching advertisements in lay and medical papers with a nice and tempting picture of a sandow, "Bonny Baby" or a fatty cow.

Yet, under the influence of western culture and medical "advice," the Indian Minister of Health has brought forth a hybrid Indo-European school of Medicine *viz.* the Indian School of Medicine. In spite of the fact that Anatomy as well as Surgery is imperfectly known and treated in *Ayurveda*, the Western and Eastern ideas of medicine are diametrically opposite and inculcations of the two ideas tend to cancel each other. Hence the products of this school who try to combine the two cannot, from the very nature of things, achieve any notable results. It is however laudable to see that the first Indian medical adviser of the state tried to restore the name and fame of a lost knowledge of a sciene which did great good to Indians for centuries before the western civilization dawned on us, the descendants of the ancient Rishis of *Bharata Varsha* and children of the religion of the *Vedas*. It might have been of great good if the minister tried to revive the Ayurveda which is now almost a lost Science of Healing which was known to the Rishis of old, and which we failed to duly cherish owing to the rapid growth and encouragement by state and individuals, of the western Science of Healing.

Though we have little or no charge against surgical knowledge of the West, what we have been laying at the feet of the Western Science is that the Health of mankind has been devastated by the civilized ideas and the inevitable Western Science of Healing, our target being the medical or Pharmacopoeal side of it.

The teachings of the unscrupulous use of drugs especially the inorganic compounds have been a great hindrance to the progress of health.

Drugs are the chief means by which diseases in chronic and incurable forms is made possible and maintained in the human system so as to deprive succeeding generation of their right to a good heridity which means a good start in life.

We maintain drugs especially patent drugs as quinine, mercury, Iodide and coaltar products have remote, as well as immediate, effects, and that the former are necessarily unfavourable. This fact is supported by the evidence of human organs and teeth seen especially in city dwellers. Hence the guilt of the western science to do more harm in trying to do good is established. The phenomenon of the revival of diseases especially "Malaria" when the bodily conditions are favourable as due to constipation, indigestion, pregnancy or confinement, is by itself strong presumative evidence of our accusation.

The acute disease, which is treated with drugs is thereby driven into the system, and lie dormant as a dried seed of diseases to develop unnoticed into a chronic disease. Most of the drugs mentioned and used by the Allopath remains in the system especially the "gums." These drug deposits is the chief cause of Pyorrhoea in drug eaters living in cities which can be cured, if at all only by expelling the drugs by antidotes if not by natural methods. Of course "Pyorrhoea" in such cases is ascribed to original diseases as malaria or stomach Troubles, which proves only a confession of incompetecce to prevent or cure diseases by drugs.

Hence drugs should be little or sparingly used if at all. The salt contained in foods are however harmless. Hence we should learn to rely upon the vegetable kingdom for supplying the salts required by the human system, and should utterly eschew all inorganic substances, however similar they may be in chemical composition to the substances required. Hence the idea of an Ayurvedic doctor, using the highly poisonous inorganic compounds of an Allopathic Pharmacopia in preference to his decoction of herbs and roots, is repugnant.

The Sanitarians are mostly Theoretical Faddists who believe and act on the results of their experiments in their laboratories and their lament is that their failures are always due to the poverty, ignorance and conservatism or superstition of the people. If the illiterate-as a matter of fact the literate too-are able to understand, they say, that diseases are all due to a germ or parasite or inimical associate the mosquito, bug or lice and if they try to extirpate these by antiseptics or other means, diseases will disappear like mist before the morning sun. We are reminded in this connection the case of a zamindar, who is practising even to this day the tenets of this theory to its extreme limit. Though looking after a large zemindari estate, he keeps himself within the bounds of his bunglow and compound wall for fear of being attacked by germs floating in the outside air. His servants and visitors dip their legs and sometime, their dress too in an antiseptic lotion kept at the door for the purpose before they enter his premises or have an interview from a distance of a few yards. The visitor from a distant town or place, however, has to stay in his village for a week or more before he is allowed to come in his presence. This rich convert of this germ theory eats on a sterilised silver plate with spoon and fork and uses only boiled water for drinking or ablution purposes. But strangely enough, the mouth is

allowed to be in highly offensive state due to shaky Pyorrhic teeth while practising and observing the germ theory to its ludicrous extreme. The Sanitarians like this patient have their near sight blurred and protect themselves from supposed distant enemies by all means at their disposal. But you may wash your vegetables, boil your food and water, or even destroy mosquitoes and rats, it is of no value unless the mouth through which the food and part of the air you breathe are in kept in perfectly healthy condition free from germs, decay or disease and the body is made resistant to diseases and germs not only floating in the air and on objects outside the body but also on body, teeth and mouth.

(*To be continued.*)

THE PHYSIOLOGICALLY CLEAN MOUTH

By H. W. G. BODECKER, B. S., D. D. S., M. D., D. M. D., Berlin, Germany

A number of years ago the author became interested in the question of why certain individuals, otherwise scrupulously exact in the toilet of the body, are so often seemingly negligent in the care of the mouth. Upon being questioned, such individuals will almost invariably assert that they clean their teeth regularly once or twice a day, and will name the paste, powder or mouthwash they are in the habit of using. They are perfectly confident that that particular preparation keeps the mouth clean, and, to prove this fact, often literally repeat the words used by the manufacturer in his advertisements. If an examination proves the mouth to be unclean, but two conclusions are possible: either the word of the patient must be doubted or the method he uses must be inefficient. The fact that there was no reason to doubt the truthfulness of the statements made by many of the patients induced the author to give this subject his special attention.

Contrary to the usual method of approaching such questions, that is, from the scientific standpoint of the dentist, it was decided to begin by investigating the standpoint of the public. A great number of patients, with mouths in all conditions, were asked certain questions to determine exactly what "taking care of the mouth" signifies to the average well-bred individual. The results were surprising. The answers to the simple questions were, with few exceptions, far from satisfactory. They again, however, illustrated the fact that many individuals will perform an act every day mechanically without a thought of their own; either because they have been taught to do so or simply in obedience to custom. Of the questions asked only the following are of special interest, as they become the starting-point for the further consideration of the whole subject.

Why do you brush your teeth? The usual answer was, "To clean them." Thoughtful patients were

not quite so prompt in answering; they at least tried to be more explicit. One patient answered: "In obedience to custom." He gave the reply which many others should have given if they had been truthful.

How long does it take to clean the teeth? The answers given were varied, from one to five minutes. If asked why the operation takes just the stated length of time, the patient was at a loss for a reply. Usually he was then ready to admit that, in contradistinction to all other acts of the toilet, he brushes his teeth without paying any special attention to what he is doing, until the thought occurs to him that he has brushed them quite sufficiently. The patient also admits that, while brushing his hands or manicuring his nails, he repeatedly subjects them to examination, and would never claim that it always taken the same length of time to clean them.

When is the mouth clean? In no case was a satisfactory answer given to this question. The great majority considered the absence of discoloration on the teeth as the chief sign of cleanliness. A few spoke of the absence of calculus, while not one mentioned anything about the condition of the gums.

As a result of the inquiries made, it appears that the public considers the toilet of the mouth primarily as an æsthetic measure, and believes that the antiseptics contained in the pastes or powders used will combat all pathological conditions, including caries. It is the object of this paper to discuss this question from the standpoint of the dentist, and to formulate instructions which will not only enable the patient to take care of his mouth intelligently, but which will also cause him to do some thinking of his own.

The dentist must seek to maintain physiological conditions in the mouth, that is, to keep the tissues in a healthy state. If he succeeds, the mouth will necessarily, from the standpoint of nature, be perfectly clean. Such a condition, however, will not always be what the public would designate as an aesthetically clean mouth. As an illustration, the mouth of healthy horses or cattle may be mentioned. Physiologically, they are clean in spite of the fact that the teeth are stained by an unsightly black deposit. Evidently it is, therefore, an error to judge the cleanliness of the mouth from an æsthetic point of view.

From the illustration cited above, it might be concluded that, as the mouth of a healthy animal is physiologically clean, the mouth of a healthy man must necessarily be in the same condition, and that the toothbrush is but an æsthetic luxury. That this deduction is false, however, is proved by the experience of the dentist. So rare are cases that favour the above conclusion, that a man whose mouth is in a perfect physiological condition and who has never in his life given the care of his mouth a moment's thought, is looked upon almost as a freak of nature. From a scientific standpoint he may, in fact, be considered as such.

Though the thought that, physiologically speaking, the mouth of a

healthy man is not as clean as that of a healthy animal may not be pleasing, the fact itself may be readily explained by considering the position occupied by man among the animals of the present geological age. In this connection, some of the generally accepted theories of evolution must be briefly mentioned. In the development of their forms all animals, man included, are subject to the same laws of nature. The forms of the animals inhabiting the earth to-day have developed from forms which have existed in the past. Development is the result of external conditions acting upon the species. As long as these conditions remain constant, no change in form takes place. On the other hand, a highly specialised form of animal is doomed to extinction as the special conditions which developed this species disappear. These laws of evolution apply not only to the general form of the species, but also to the organs and tissues of every individual animal. An organ, therefore, is developed in response to external stimuli; it will continue its function as long as these stimuli last, and will, upon cessation of the stimuli, degenerate or atrophy.

In applying these rules to the study of the human mouth the following questions present themselves:—

(1) What external influences developed the form of the organs of the human mouth?

(2) Are these influences still active?

(3) If not, are signs of degeneration evident in these organs?

A study of the human teeth proves that the ancestors of man subsisted on a mixed diet, as the teeth show characteristics of both the carnivorous and of the herbivorous mammalian teeth. In the following attention will be called only to certain conditions in the mouths of amimals that bear on the subject of the physiologically clean mouth, while no atttempt will be made to describe the effect of these conditions on the development of the forms of the teeth or other organs.

Of the two classes of animals previously mentioned, the carnivora have the greater difficulty in finding suitable nourishment. They must hunt their prey, often for a long time, and even when it is found, do not always succeed in making a capture. Owing to this uncertainty, they devour every part of the prey which contains any nourishment. For this reason the bones are gnawed bare and finally crushed. Because of the force necessary to accomplish this, the strain exerted on the teeth is sometimes enormous. However, the teeth and, what is of special interest in connection with this paper, their attachment to the jaws have developed so that they are perfectly adapted to transmit this force. The mastication of the food does not take place, as the mouth plays no particular part in the digestion of animal food. The office of the teeth of the carnivora is only to divide the food sufficiently so that it may be easily swallowed.

The herbivora, having an almost unlimited supply of vegetable foods, usually choose the most succulent.

The force necessary to masticate such food is, therefore, considerably less than that used by the carnivora, while mastication is greatly prolonged. The chief nutrient constituents of vegetable foods are inclosed within cellulose coverings. The latter must be broken up mechanically by prolonged mastication to prepare the food for digestion. The food of the herbivora is not confined to herbs and grasses alone, but includes leaves, twigs, bark and even roots. All these contain more or less coarse vegetable fibres, while many also have hard, sharp, wood-like components. Even ordinary grass is not quite harmless, as many can testify who have cut themselves by drawing a blade of grass through the fingers. During the prolonged mastication, this rough food circulates in the mouth without injuring the mucous membrane. This tissue, one of the most delicate in other parts of the body, has developed into a protective covering, able to resist injury almost better than the external skin. To what extent this development may be carried can be observed in animals having no teeth in the premaxillary bones (deer, cattle, etc.) In these animals, the function of the upper incisors has been assumed by gum tissue, which has become so resistant that the animal is able to tear off its food, even including the bark of trees, without injury.

Effects of Cooked Foods on Mouth Conditions

The ancestor of man probably occupied a quite inferior position among the animals of his time. To dominate the forest, he lacked the strength and the natural weapons of the great carnivora, while the lack of speedy movements made existence upon the plains impossible. He was doomed to inhabit woodland regions, seeking food by day and securing shelter for the night. His only occupation was to satisfy his hunger. He devoured his prey, crushed bones, cracked nuts, and chewed berries, bark, roots and herbs. It took a great amount of chewing to extract sufficient nourishment out of the raw vegetable food to satisfy the needs of his body. As a species, he would probably have become extinct if his brain had not possessed the power of reacting to external stimuli by developing what we, to-day, designate as intelligence. This mental power enabled him to protect himself against unfavourable conditions, and placed him, to a certain extent, above the law of nature to which all the other animals are subject. The law of compensation, however, he was not able to escape, and therefore the development of his body, as an animal, ceased from the moment in which he became able to control external conditions by virtue of his intelligence.

The mental development of man brought about profound changes in his nourishment. The most far reaching in effect was the introduction of cooked foods. The consumption of animal food, thereupon, required less power; the gnawing of bones became easy, while the bones themselves were probably crushed by the first implements used by man. The vegetable foods needed but comparatively little mastication. Furthermore, the fact that man learned to store

foods is of great importance, as it led to the selectien and cultivation of vegetable foods of high food value. This, in turn, reduced the period of mastication still further. Concentration of food value has gone on steadily, and has not ceased even in our present time. It would be of interest to determine the quantity, time of mastication and food value of the raw foods consumed by primitive man, as compared to the highly concentrated foodstuffs of to-day. The figures would certainly be surprising.

If there is any truth in the laws of evolution, these profound changes of habit must have had some influence on the organs of the mouth. Other parts of the body, in fact, do show changes. With the exception of the brain, these are, however, degenerative or atrophic, whichever one may choose to call them. It is beyoud the scope of this paper to examine whether the teeth, in structure, position and attachment, show signs of degeneration.

The mouth of primitive man was certainly as physiologically clean as that of the other animals of his time. In animals of the present day this condition of the mouth has remained unchanged, as they are still subject to the same laws of nature as were the animals of the past. In man, this is, however, not the case. Mention was previously made of the fact that it is a very rare exception to find a mouth that is physiologically clean. Almost invariably a mouth left to the care of nature will be pronounced by the dentist to be in a badly neglected condition. Suppose the mouth of an animal were to present this identical condition. would not the veterinary be justified in concluding that he had to deal with a sick animal? And yet, in man, it is by no means a sign that the body is not healthy.

The symptoms of an aggravated case of "neglected mouth" are: deposits on the teeth, inflamed gums, which bleed easily, a diseased condition of the periodontal membrane, with a consequent loosening of the teeth, a burning discomfort while eating, and a feeling of insecurity during mastication. While this represents an advanced stage of this condition only occasionally met with, the initial stage may be found in the mouths of almost the majority of our patients. The characteristic of this stage is nothing more nor less than the presence of white deposit (mucigen plaques) upon the protected surfaces and the necks of the teeth.

The constitution of this white deposit has been repeatedly determined. For the present purpose, it is sufficient to mention that it is composed of a great number of various kinds of bacteria, epithelial cells, food debris, and a large quantity of mucus. Owing to this viscid substance, the deposit adheres tenaciously to the surfaces of the teeth. Mucus is insoluble in water, but readily soluble in weak alkalies, a fact of importance in connection with the cleansing of the mouth. White deposit forms wherever saliva stagnates, and upon surfaces neither influenced by the movements of the lips, cheeks and tongue nor cleansed by the food during mastication.

Several explanations are possible of the fact that white deposit is present in the human mouth, while it is absent in the mouths of animals. It is certain that in the human mouth the lowered vitality of the tissues, due to degenerative changes of disuse, favour the development of the deposit. For this reason alone, the formation will be greater in the mouth of man. The deposit may, however, also be formed in the animal mouth, but is constantly removed by the prolonged mastication of fibrous food. In man, two factors may account for the presence of the white deposit: its great tendency to form in the human mouth and the absence of natural cleansing by proper food.

Whatever the explanation of its presence may be, observation has proved that the white deposit has a strong pathogenic influence on the tissues with which it comes in contact. During the last two years, a number of cases of what was previously referred to as neglected mouth were cured simply by keeping the tissues absolutely free from every trace of white deposit. Furtheremore, it was observed that if the patient became negligent and allowed the deposit to collect, the inflammation of the gums reappeared, quickly subsiding again, however, under proper care of the mouth.

The clinical aspect of the condition referred to as neglected mouth is so similar to the general description commonly given of so-called pyorrhœa, that it might be supposed that this disease is being referred to. Strictly speaking, however, this is not the case. The name *pyorrhœa* was a misnomer in the first place, as it describes only a symptom, and the "flow of pus" is not even present in every case; it includes a number of different diseases, according to the more recent views. Among these, the simple gingivitis, caused by negligence in the care of the mouth, is, however, of very great importance. It would undoubtedly be a step forward in the investigation of the other forms of periodontal diseases if all cases of simple gingivitis could be excluded by a systematic care of the mouth. By this means, it was possible to arrest the disease in a number of patients who for years had more or less regularly been receiving "pyorrhœa" treatment with varied success. The diagnosis of pyorrhœa had been made by several dentists, and yet the effect of cleanliness proved the disease to be nothing more than a simple gingivitis.

Co-operation of the Patient

Special stress must be laid on the fact that the success or failure of the treatment lies entirely in the hands of the patient. He must, therefore, be systematically instructed as to the significance of the white deposit, and must be brought to realise that no trouble should be spared in its removal. Though this is sometimes difficult, an appeal to the patient's sense of propriety is usually effective, if he is told that uncleanliness of other parts of the body is only offensive, while the presence of white deposit is not only unæsthetic, but also highly injurious. The patients most easily convinced as to the efficacy of the

treatment are those suffering from a more advanced stage of the disease, as they are able, from the subjective symptoms, to judge for themselves the improvement made in their condition. Such patients often remark that it is a pleasure to be able to bite into a roll or an apple again without that sense of insecurity from which they have been suffering for years. Others, less seriously affected, have repeatedly remarked that the mouth, after the morning toilet, feels as it did in the past after it had been cleaned by the dentist. Such patients no longer need supervision, but may be depended upon to keep their mouths in a perfect condition themselves.

An important part of the education of the patient is to teach him to judge the state of cleanliness of his mouth. He should be so well informed that he would no more think of consulting the dentist in regard to the cleanliness of his mouth than he would of asking some one else whether or not his hands were clean. The patient must be taught to study the individual conditions of his own mouth. The white deposit is not uniform throughout the mouth, but collects more rapidly in certain places. As these vary with the individual, their location must be determined by each patient for himself. Once located, however, these places serve as an index of cleanliness, saving the patient the trouble of repeatedly controlling all parts of the mouth. The examination should be made before a mirror, and, as an instrument, a metal or quill toothpick should be used. It is rarely advisable to place a dental probe in the hands of a patient.

The rapidity with which white deposit forms varies not only among individuals, but also at different times in each individual. Digestive disturbances and general diseases are important factors in increasing the rate of deposit; only the patient, therefore, is able to judge how often during the day it is necessary for him to clean the mouth. Further, the patient must be taught to recognise even slight inflammatory conditions of the gums; he must be acquainted with the difference in colour of normal and inflamed gum tissue, and with the fact that healthy gums do not bleed.

The chief aim in instructing the patient should be to impress upon his mind that the white deposit is not a harmless sign of uncleanliness, but that it is a positively injurious substance that should be removed daily or oftener if necessary. If these instructions have the desired effect, it is an easy matter to induce the patient to spend a few moments more than he has been accustomed to on the toilet of his mouth.

As natural cleanliness is out of the question, man must provide his own means for keeping his mouth clean. This necessity was already recognised in early times, not alone among civilised nations, but also among uncivilised tribes. The oldest instrument used in cleansing the teeth is undoubtedly the toothpick, its origin having been traced back 3,000 years by Dr. Hans Sachs ("The Tooth-Pick, and its

History," Berlin, 1913). The same author states that in the Middle Ages and later, golden toothpicks were worn as jewelry, suspended from the neck by a heavy golden chain. Less wealthy people of that time simply used the knife with which they cut their meat. A toothpick of a later date, seventeenth century, is preserved in the South Kensington Museum in London. It is part of a silver travelling set, consisting of a hollow handle, on one end of which an interchangeable fork and spoon can be attached. The other end of the handle serves as a receptacle for the toothpick.

The modern means of cleansing the mouth include the toothbrush, powders, pastes and mouthwashes. The earliest mention of the toothbrush is found in Chinese literature, about 1600. It is said to have been invented a century earlier. In Europe, it is mentioned about the middle of the eighteenth century, though its general use began only about fifty years later. It would be natural to suppose that, during the long period that has elapsed since that time, a certain type of brush and definite method of brushing should have developed which would be generally accepted. That this has, however, not been the case, as proved by the innumerable forms of brushes offered to the public, as well as by the fact that in each of the last decades some new method of brushing the teeth has been advocated. The changes made in the brush consist in the alteration of the curvature of the handle and of the arrangement and length of the tufts and bristles. And yet, the ordinary tooothbrush, as used centuries ago, is still on the market and finds its purchasers. The changes made in the method consist in an alteration in the direction of brushing, and in this case also each system still finds its advocates.

Antiseptic Mouth Preparations

With the development of the science of bacteriology, the era of antiseptic mouthwashes and pastes set in. As a result, the mechanical cleansing of the teeth has been more and more neglected. The general opinion almost seems to be that a good toothpaste will clean the teeth automatically, while the toothbrush serves no other purpose than to distribute the agent on the surfaces of the teeth. The public has been taught that the value of a mouth-wash or a toothpaste is in direct proportion to its antiseptic power, and the manufacturer whose product will destroy the most bacteria in the shortest possible time, as proved by the examination of the bacteriological laboratory, will honestly believe himself to be a benefactor of mankind. Luckily, the anatomical conditions of the oral cavity are such as to make the extermination of the bacterial flora of the mouth almost impossible. According to the views of Professor Schonbeck (Berlin), the presence of bacteria in the mouth is not only normal, but also necessary. They do the individual no harm, as the body, in course of time, produces the antitoxins necessary to protect it against the effects of the bacteria which are constantly present in that special mouth. Having become adapted to this special environment, these bacteria will be more able to

exist in this mouth than bacteria newly introduced, and consequently will, if all other factors are equal, tend to prevent the development of the strange bacteria. For this reason, the daily use of strong antiseptics cannot be recommended, as they unbalance the natural protection against infection. By weakening the bacteria normally present in the mouth, the strange bacteria, introduced after the brief action of the antiseptic has passed away, have a far greater chance of unchecked development that if nature had been left unassisted. Strong antiseptics should be considered as medicaments to combat pathological conditions of the mouth, and should be used by the patient only upon the advice of his dentist.

The deodorant power of the toothpaste or mouthwash is often praised by its manufacturer as a quality of special value. A moment's consideration, however, will prove the contrary. The breath of a healthy individual, with a clean mouth, is by no means offensive. The presence of an odour is invariably the sign of some abnormal condition of the teeth, the gums, the nasopharynx, or it may even be a symptom of some general disease. It is, therefore, by no means a benefit to the individual to enable him to deodorise the breath, instead of leaving him no other choice than that of going to a dentist or a physician for the treatment of his real disorder. A distinction must be made between the deodorants and the substances used to scent the pastes and mouthwashes. The latter are usually a combination of different essential oils. There is no objection to their use in small quantities; on the contrary, they act as mild stimulants to the mucous membranes and impart an agreeable scent to the normal breath. These substances are comparable to the perfumes used in the toilet of the body; their office is to refresh and scent, and not to mask the odours of uncleanliness.

The Dental Cosmos.

(*To be Continued.*)

CELIBACY.

(*Brahmacharin*)

While narrating his past sins of omission and commission one middle aged tooth patient who was suffering from tooth troubles from his teens and who lost most of his teeth by 30 years of age, was obscessed to know what his real sin was for the extreme penalty of Laws of Health *viz.* almost complete loss of Teeth. His father aged 60 or 65, hale and healthy, with sound and strong teeth, used to warn him, he said, to be temperate in everything including conjugal relations. The educated son however generally disobeyed the instructions re. eating, drinking (coffee) and smoking and even indulged in his "legitimate" enjoyment, as he called. It is this loss of "internal secretions" that undermined his health and paved the way for Pyorrhoea—a dire disease now a

days harvesting a good crop of teeth of the educated professionals more often due to the insufficiency of "*Dhatu*" content in the human blood necessary to make body, bone and teeth resistent to diseases.

The "bees" like cells of the genital organs supply the honey of "Dhatu" for the collective use of the "drones" of the whole body, and hence it must be spared for the growth of the body until it ceases to grow. Though the man is generally understood to attain "majority" by 18 or 19 years, his body, bones and teeth are in need of this "dynamic" force-driving fluid for 6 or 7 years more. In case of women, however, who are always precocious in growth of body and development of brain, and who are supposed to attain puberty by 13 or 14 years, and now a days by 11 or 12 years, the womb and pelvic bones are in dire need of this secretion at least 5 or 6 years more. That the genital "secretions" play such an important part in the resisting power of the teeth and mouth organs, may be estimated by the fact that in the case of boys with "Night emissions" and young girls who live married life, the wisdom tooth finds it difficult to cut and usually causes greatest trouble which is often undiagnosed by the usual medical attendant. Young married couple's Tooth Troubles, if any, become aggravated after the consummation of marriage. Hence the object of the internal secretion especially of the "genital organs" is primarily for the body and secondarily for the multiplication of the human species and is least meant for the satisfaction of the "passions" as understood by the youths in the west or the reformed Indians.

Even in the west, there are a few "reformers" condemning the indiscipline of morals and its aggravation by the use of contraceptives and its terrible results. It is however a pity that our "reformers" are taking up the view of the majority and are phoo phooing our ancient ideas of "the necessity of chastity for the married, the duty of marriage of conjugal fidelity and the duty of continence in marriage." The ancients believed and acted that chastity is necessary for the physiological nature of man and woman and necessary to the happy equilibrium of their health.

The food and the habit of the Indian has been changing due to very many factors and physiologically affecting the genitals to goad the individual go astray and lose this very essence of health and long life. As is the food, the actions; the constant stimulation of nerves by coffee, tea if not by wine, as well by artificial foods, sugars and sugary foods the civilized men cannot for ever restrain their animal passions but yearn for the freedom and autonomy, their right to happiness and to live a life in their own way. The awakening of sensuality, which pharisaism calls the sexual necessity, is also the result of the innumerable excitements which the modern civilization provides for young boys and girls several years before normal adult age

Mahatma Gandhi writing on an allied subject says and quotes as follows :—

"We need to cultivate public opinion that shall make child marriages impossible. The vacillation, and the disinclination to do hard and sustained work, the physical inability to perform strenuous labours, collapses of enterprises brilliantly begun, the want of originality, one notices so often, are due largely to excessive indulgence. I hope young men do not deceive themselves into the belief that when there is no procreation the mere indulgence does not matter, does not weaken. Indeed the sexual act, with the unnatural safeguard against procreation, is likely to be far more exhausting than such act performed with a full sense of the responsibility attached to it.

"The mind is its own place, and in itself
Can make a heaven of hell, a hell of heaven."

If we begin to believe that indulgence in animal passion is necessary, harmless and sinless, we shall want to give reins to it and shall be powerless to resist it. Whereas if we educate ourselves to believe that such indulgence is harmful, sinful, unnecessary and can be controlled, we shall discover that self-restraint is perfectly possible. Let us beware of the strong wine of libertinism that the intoxicated West sends us under the guise of new truth and so-called human freedom. Let us, on the contrary, listen to the sober voice from the West, that through the rich experience of its wise men at times percolates to us, *i. e.*, if we have outgrown the ancient wisdom of our forefathers.

Regeneration and Generation

"Charlie Andrews has sent me an informing article on 'Generation and Regeneration' written by William Loftus Hare and printed in "The Open Court" (March 1926). It is a closely reasoned scientific essay. He shows that all bodies perform two functions; namely internal reproduction for the building up of the body and external reproduction for the continuance of the species. These processes he names regeneration and generation respectively. "The regenerative process—internal reproduction—is fundamental for the individual and therefore necessary and primary generative process is due to a superfluity of cells and is therefore secondary. . . . The law of life, then at this level is to feed the germ cells firstly for-regeneration and secondly, for generation. In case of deficiency, regeneration must take the first place and generation be suspended. Thus we may learn to the origin of the suspension of reproduction and follow it to its later phases of human continence and asceticism generally. Inner reproduction can never be suspended except at the cost of death, the normal origin of which is thus also discerned." After describing the biological process of regeneration the writer states: "Among civilized human beings sexual intercourse is practised vastly more than is necessary for the production of the next generation and is carried on at the expense of internal reproduction, bringing disease, death and more in its train."

"No one who knows anything of Hindu philosophy can have difficulty in following this paragraph from Mr. Hare's essay:

"The process of regeneration is not and cannot be mechanistic in character, but like the primitive fission, is vitalistic. That is to say, it exhibits intelligence and will. To suppose that life separates, differentiates and segregates by a process that is purely mechanistic is inconceivable. True, these fundamental processes are so far removed from our present consciousness as to seem to be uncontrolled by the human or animal will. But a moment's reflection will show that just as the will of the fully developed human being directs his external movements and actions in accordance with the guidance of the intellect--this, indeed, being its function--so the earlier processes of the gradual organization of the body must, within the limits provided by environment, be allowed to be directed by a kind of will guided by a kind of intelligence. This is now known to psychologists as "the unconscious." It is a part of our self disconnected from our normal daily thinking, but intensely awake and alert in regard to its own functions—so much so that it never for a moment subsides into sleep as the consciousness does".

Irreparable Harm of Sexual Acts

"Who can measure the almost irreparable harm done to the unconscious and more permanent part of our being by the sexual act indulged for its own sake? The sexual act is essentially katapolic (or a movement towards death) in the male and in parturition of the offspring it is katabolic for the female." Hence the writer contends virility, vitality and immunity from disease are the normal lot of nearly or quite continent persons. "Withdrawal of germ cells from their upward regenerative course for generative or merely indulgent purposes deprives the organs of their replenishing stock of life, to their cost slowly and ultimately." It is these physical facts which constitute the basis of a personal sexual ethic, counselling moderation, if not restraint—at any rate, explaining the origin of restraint. The author, as can be easily imagined, is opposed to birth control by chemical and mechanical means. He says: "It removes all prudential motives for self-restraint and makes it possible for sexual indulgence in marriage to be limited only by the diminution of desire or the advance of old age. Apart from this however it inevitably has an influence outside the marriage relation. It opens the door for irregular, promiscuous and unfruitful unions, which, from the point of view of modern industry, sociology and politics, are full of danger. I cannot go into these here. It is sufficient to say that by contraception, inordinate sexual indulgence both in and out of marriages if facilitated and, if I am right in my foregoing physiological arguments, evil must come to both individuals and the race".

Let the Indian youth treasure in their hearts the quotation "The future is for the nations who are chaste".

Self-Restraint Necessary and Possible

"The sexual instinct," says Esterlen, professor at Tubigen University, "is not so blindly all-powerful that it cannot be controlled, and even subjugated entirely by normal strength and reason. The

young man, like the young woman, should learn to control himself until the proper time. He must know that robust health and ever renewed vigour will be the reward of this voluntary sacrifice."

"One cannot repeat too often that abstinence and the most absolute purity are perfectly compatible with the laws of physiology and mortality, and that sexual indulgence is no more justified by physiology and phychology than by morality and religion.

"The example of the best and noblest among men," says Sir Lionel Beale, professor at the Royal College in London, "has at times proved that the most imperious of instincts can be effectively resisted by a strong and serious will, and by sufficient care as to manner of life and occupation. Sexual abstinence has never yet hurt any man when it has been observed, not only through exterior restrictive causes,but has a voluntary rule of conduct. Virginity, in fine, is not too hard to observe, provided that it is the physical expression of a certain state of mind. Chastity implies not only continence, but also purity of sentiment, the energy which is the result of deep convictions."

"Every kind of nervous activity," says the Swiss psychologist Forel, who discussess sexual anomalies with a moderation equal to his knowledge, "is increased and strengthened by exercise. On the other hand,inactivity in a particular region reduces the effects of the exciting causes which correspond to it."

"All causes of sexual disturbance increase the intensity of desire. By avoiding these provocations it becomes less sensitive, and the desire gradually diminishes. The idea is current among young people that continence is something abnormal and-impossible,and yet the many who observe it prove that chastity can be practised without prejudice to the health."

"I know," says Ribbing, a number of men of 25,30 and older than that, who have observed perfect continence, or who when they married had done so up to that time. Such cases are not rare; only they don't advertise themselves."

"I have received many confidences from students, healthy both in body and mind, who have remonstrated with me for not having sufficiently insisted on the case with which sensual desires can be ruled."

"Before marriage, absolute continence can and ought to be observed by young men," says Dr. Acton, "Chastity no more injures the body than the soul," declares Sir James Paget, Physician to the English Court; "Discipline is better than any other line of conduct."

"It is a singularly false notion," writes Dr. E. Perier, "and one which must be fought against, since it besets not only the children's mind but that of the fathers as well: the notion of imaginary dangers in absolute continence. Virginity is a physical, moral and intellectual safeguard to young men."

"Continence," says Sir Andrew Clarke, "does no harm, it does not hinder development, it increases energy and enliven perception.

Incontinence weakens self-control, creates habits of slackness, dulls and degrades the whole being, and lays it open to diseases which can be transmitted to several generations. To say that incontinence is necessary to the health of young men is not only an error, but a cruelty. It is at once false and hurtful."

The Evils of Incontinence.

"The evils of incontinence are well known and undisputed," writes Dr. Surbled: "those produced by continence are imaginary; what proves this is the act of the many learned and voluminous works devoted to the explanation of the former, while the latter still await their historian. As to these latter there are but vague assertions, which hide themselves, for every shame, in mere talk, but which will not endure the daylight."

"I have never seen," writes Dr. Moneegazza in *La Physiologie de l'amour*, "a disease produced by chastity. . . . All men, and especially young men, can experience the immediate benefits of chastity."

Dr. Dubois, the famous professor of neuropathology at Berne, affirms that "there are more victims of neurasthenia among those who give free rein to their sensuality than among those who know how to escape from the yoke of mere animalism," and his witness is fully confirmed by that of Dr. Fere, Physician at the Bicetre Hospital, who testifies that those who are capable of psychic chastity can maintain their continence without any fear of their health, which does not depend on the satisfaction of the sexual instinct.

"There has been unfitting and light talk," writes professor Alfred Fournier, 'about the dangers of continence for the young man.' I can assure you that if these dangers exist I know nothing about them, and that as a physician I am still without proof of their existence, though I have had every opportunity in the way of subjects under my professional observation.

"Besides this, as physiologist, I will add that true virility is not attained before the age of 21, or thereabouts, and the sexual necessity does not obtrude itself before that period, especially if unhealthy excitements have not aroused it prematurely. *Sexual precocity is merely artificial* and *is most often the result of ill-directed upbringing*.

"In any case, be sure that danger of this kind lies far less in restraining than in anticipating the natural tendency; you know what I mean."

Lastly, after these most authoritative testimonies, to which it would be easy to add many others, let us quote the resolution unanimously voted at Brussels in 1902 by the 102 members present at the second General Congress of the international Conference of Sanitary and Moral Prophylaxis, a congress which assembled together the most competant authorities on the subject throughout the world: "Young men must above all be taught that chastity and continence are not only not harmful, but also that these virtues are among those to be most earnestly recommended from the purely medical and hygienic standpoint."

"There was also a unanimous declaration issued by

the professors of the Medical Faculty of Christian University, a few years ago: "The assertion that a chaste life will be prejudicial to the health rests, according to our unanimous experience, on no foundation. We have no knowledge of any harm resulting from a pure and moral life."

Sexual Appetite Needs no Necessary Satisfaction

"The case has therefore been heard, and sociologists and moralists can repeat with M. Ruysen this elementary and physiological truth "that the sexual appetite does not need, like the requirements of aliment and exercise, a minimum of necessary satisfaction. It is a fact that man or woman can lead a chaste life without experiencing except in the case of a few abnormal subjects, serious disturbance or even painful inconvenience. It has been said—and cannot be too often repeated, since such an elementary truth can be so widely disregarded—that no disease ever comes through continence to normal subjects, who form the immense majority, while many diseases, very well known and very serious, are the results of incontinence. Nature has provided in the most simple and infallible way, for the excess of nutrition which is represented by the seminal fluid and the menstrual flux."

"Dr. Viry is therefore right in denying that the question is one of a true instinct or a real need." Every one knows what it would cost him not to satisfy the need of nourishment or to suppress respiration, but no one quotes any pathological consequences, either acute or chronic, as having followed either temporary or absolute continence. . . . In normal life we see the example of chaste men who are neither less virile in character, nor less energetic in will, nor less fitted to become fathers if they marry. . . . A need which can be subject to such variations, an instinct which accomolates itself so well to lack of satisfaction, is neither a need nor an instinct."

"Sexual relationship is far from answering to any physiological need of the growing boy; quite the contrary, it is perfect chastity which is sternly required by the exigencies of the normal growth and development, and those who violate it cause irreparable injury to their health. The attainment of puberty is accompanied by great changes a veritable disturbance of various functions, and a general development. The adolescent boy needs all his vital strength, for during this period there is often a weakening of the resistance to sickness; disease and mortality are higher than in the earlier period'' . . . The long work of general growth of organic evolution, that whole series of physical and psychic changes, at the end of which the child becomes a man, involves a toilsome effort of nature. At that moment, all overdriving is dangerous but especially the premature exercise of the sexual function." Medical opinion in the west are slowly forming in support of our ancient theory that married life is *Sancto Sanctorium* and that celibacy in young age and self restraint in married life is not only necessary for the promotion of health and is perfectly possible.

THE PHYSIOLOGICALLY CLEAN MOUTH

By H. W. G. BODECKER, B. S., D. D. S., M. D., D. M. D., Berlin, Germany

(*Continued from p. 15*)

Mohammedan Customs

In connection with the subject of cleaning the mouth, the customs prevalent among the Mohammedan nations are of special interest. Mohammed himself, one of the greatest hygienists of past ages, laid down precise and strict commandments regarding the cleansing of the body. Therein he laid great stress upon the care of the mouth and teeth. According to Dr. Zeki Kiram-Bey, from whose "Care of the Mouth and Teeth among Mohammedan Nations" the following facts are quoted, the instrument used, instead of our brush, by all pious Mohammedans is the so-called miswak or siwak. This is a stick of a special kind of wood, one end of which has been beaten with a hammer into the form of a fibrous brush. As material for these Mohammedan toothbrushes, pieces of the aromatic roots of a small bush, Salvadora persica, are preferred. Mohammed not only described the proper grasp for holding the miswak, but also gave detailed directions for its use. The miswak is to be applied first to the buccal surfaces of the upper and the lower teeth, proceeding from right to left, and then from left to right. The ingual surfaces are cleaned in a similar manner. Thereupon the miswak is to be guided into all the interdental spaces, and finally the tongue is to be brushed lightly to remove the superficial deposit. The pious Mohammedan accompanies these ablution with appropriate prayers.

Besides the miswak, the Mohammedans use toothpicks, which they call chilal. These also are a product of nature, being the stems of the flowers of the umbelliferous plant, *Ammi visnaga*. They have an anise-like taste. The fact that the presents brought home by the pious pilgrim from Mecca always include a prayer chain, miswak and chilal, proves the importance the Mohammedan still places on the proper care of the mouth. A few sayings of Mohammed in regard to the care of the mouth may be of interest. "Do not appear before me with unclean teeth." God has made this day (Friday) a holiday; bathe . . . and use the miswak." "A prayer in which the miswak is used is more pleasing to God than seventy prayers without the miswak."

The use of such wooden toothbrushes antedates the Mohammedan era in Arabia, and is also existent among African tribes. Personally, this custom was observed among the Somalis. It had apparently no religious connection, but seemed to be pastime only. For hours the men sat about gossiping and cleaning their teeth. The stick of wood, frayed by prolonged chewing, was used more as a toothpick than as a brush. It was applied with special vigour to the interdental spaces. The anterior teeth and the gums, which could be very easily observed

were always found to be in perfect condition.

In the toilet of the mouth, the western nations rely principally upon chemicals, while the orientals use mechanical means only, and thereby imitate nature's method of keeping the animal mouth clean. It has been previously stated that the tissues of the mouth, with special reference to the gums, were developed under the mechanical stimuli of coarse and fibrous food Furthermore, attention was called to the fact that if the external stimuli which developed the tissue were to cease, degeneration would set in. For this reason, the thorough mechanical cleansing must be considered the more rational method. Practically, however, certain inert chemical substances may be used to advantage, but compared to the mechanical cleansing, they should be of secondary importance only.

From the foregoing discussion of the physiologically clean mouth, it might be supposed that some special form of brush or powder is about to be recommended. This is, however, not the case. The main object was to call attention to the deleterious effects of the white deposit, and to emphasise the fact that the public should be taught to regard it as a sign of uncleanliness. As soon as a patient has grasped the significance of this fact, it is immaterial what special method he uses to remove the deposit. Experience has shown that it is not advisable to give the patient detailed directions which he must follow, but rather to allow him, within certain limits, to develop a method of his own. This insures his co-operation and stimulates his interest. He will give more thought to the care of his mouth, if for no other reason than to prevent his dentist from finding any trace of white deposit when he presents himself for examination.

The patient must, however, be given certain fundamental instructions. These include a description of the part played by coarse fibrous food in cleansing the mouths of animals; the character and usual location of the white deposit; the most suitable form of brush, and the chemical substances that may be safely used.

Attention should be called to the fact that white deposit collects about the necks of the teeth, under the margins of the gums and, above all, in the interdental spaces, while the lingual, labial and occlusal surfaces of the teeth are kept practically clean by the food during mastication. For this reason, the collection of tartar is confined to the former places, the white deposit may be regarded as the preliminary stage in the formation of calculus

The brush best adapted to clean the interdental spaces is one in which the bristles are arranged in tufts, each tuft containing bristles of different lengths. The bristles should not be too hard; the exact degree of hardness may be left to the choice of the patient. The tuft at the end of the brush should be larger and the bristles longer. The handle should be slightly curved, while the size should not greatly exceed that of the so-called children's brush. It is advisable to use at least one new brush per mouth.

The Author's Tooth Brushing

The only specific directions given to the patient are those regarding the manipulation of the brush. In none of the usual methods of brushing do the bristles penetrate into the interdental spaces or under the margins of the gum. The observations made in the Orient, however readily suggested a method of using the ordinary toothbrush to accomplish this same purpose. Suppose the attempt were made to clean a comb with an ordinary brush. No amount of brushing in any direction would clean the spaces, especially at the base of the teeth. The only way to accomplish this would be to force the bristles into the spaces at right angles to the teeth. This is practically the method used by the Somali when he cleans the teeth with his wooden brush, or what our ancestors did, to a limited extent, when they cleaned their teeth with a toothpick. The patient readily understands what is required of him, if he is taught that the toothbrush is not an implement with which to brush the teeth, but that is to be considered solely as a bundle of toothpicks and that it should be used as such only.

In the beginning, a certain amount of awkwardness must be overcome, but the technique is soon learned, if the patient begins by practising on the anterior teeth. The margin of the back of the brush is held close to the necks of the teeth, while the bristles lie upon their labial surfaces. The brush is then rotated outwardly until the bristles come in contact with the margin of the gum. The object of this procedure is to prevent the ends of the bristles from injuring the tender gums, which would occur if the brush were to be applied at an oblique angle. As soon as the bristles are in the position at right angles, the brush is forcibly pressed against the surfaces of the teeth, and is firmly held in place while being slightly moved both vertically and horizontally with a vibratory motion. While the longer bristles penetrate deeply into the interdental spaces, the shorter ones sweep over the surfaces of the teeth and under the margins of the gum. After having thus cleaned the teeth from the labial surfaces, the same process must be repeated lingually. For this purpose, the longer tuft at the end of the brush is specially adapted. Gradually the patient will learn to manipulate the brush in accordance with this method in all parts of the mouth. Later, he may even alter the method to suit himself. There is no objection to this if he is able to keep the mouth free from every trace of white deposit.

Indirectly, the author heard that Dr. Hartzell, of Minneapolis, published a method of cleaning the teeth which, from the description given, may be similar to the one suggested above. The article not being at hand, this fact could not be verified. Mention is made of the publication of Dr. Hartzell in case the methods should be identical.

As a rule, even when no marked inflammation is present, the gums will bleed in the beginning of this treatment. Soon, however, this ceases, and the tissues become firm and healthy in colour. The force then used in cleaning the teeth may,

without harm, be so great as to snap the celluloid handle of a tooth-brush. For this reason, only brushes with bone handles should be recommended. If bleeding sets in again later on, it serves as a warning to the patient that a certain spot has been for some time neglected. He may be able to check the bleeding himself by more thorough cleansing. Should he be unsuccessful, he must consult his dentist, as the inflammation is then caused no longer by white deposit, but by the calculus into which it has been transformed.

As an aid in cleaning the teeth, certain non-irritant substances may be employed to advantage. There is no objection to the use of a mouthwash, if it contains only harmless ingredients. In the choice of the wash, the patient may suit his own taste. It must, however, be distinctly understood that it is not to be considered as an antiseptic, but only as a means of refreshing the mouth.

Chemical Aids

Owing to the great quantity of mucus contained in the white deposit, it is insoluble in water and is therefore difficult to dislodge. While he Oriental has sufficient time and patience to remove the deposit mechanically, we, in order to shorten the process as much as possible, must resort to chemical aids. The most suitable agent for this purpose is pure neutral soap. Many writers consider soap to be an irritant to the mucous membranes. Professor Schornbeck (Berlin) has conclusively proved by a series of animal experiments that pure medicinal soap causes no reaction whatever of the mucous membrane of the mouth. As there is a great difference in the alkalinity of even the best of soaps, care must be exercised in the choice of the kind to be used for cleaning the teeth. Aside from the medicinal soap, the best quality of shaving soap is the least irritating.

Another substance of use in shortening the process of cleaning the teeth is precipitated chalk. Its action is purely mechanical, as chemically it is practically inert in the mouth. Though chalk has been condemned by some authorities on account of the supposed abrasive qualities, it positively can do no harm when used in connection with the method of cleaning described above. The motion of the brush is so limited as to preclude the abrasive effect occasionally observed in the ordinary method of brushing. The quantity of chalk used in one cleansing should amount to about a teaspoonful. The patient should advise to use pure precipitated chalk in preference to prepared toothpowders.The latter are intended for use in much smaller quantities than mentioned above, and therefore contain a proportionately large amount of essential oils, etc. Used too liberally, such powders act as irritants. The same is true of most of the tooth-pastes. The container for the chalk should be a shallow dish, with a cover which can be conveniently removed.

For cleansing the teeth, the brush is moistened with water or diluted mouthwash and lightly rubbed on a piece of soap. It is then dipped into the container and a quantity of chalk, amounting to about a teas-poonful, is carried to the mouth upon the side of the brush. The

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chak is first distributed over the surfaces of the teeth, and then the cleansing is begun in the manner described above. The time necessary to complete the process will be slightly longer than that of the usual method of brushing the teeth.

In connection with the toilet of the mouth, the cleansing of the tongue may be briefly mentioned. Deposits collect on the tongue, which should be removed, in many cases, as often as twice daily. Some patients do make the attempt to remove the deposit by lightly brushing the tongue, but, as a rule, this condition is neglected. A far more suitable implement is the scraper made of a piece of whalebone or celluloid, with smooth, rounded edges. This will remove the deposit from the tongue more quickly and with less danger of injury than the toothbrush. The edges of the scraper, however, must always be in a perfectly smooth condition.

In conclusion, attention is once more called to the fact that the method previously described should not be regarded as a hard and fast rule, but that the patient should be allowed to modify it according to his individuality. What he, however, must be thoroughly impressed with, is the fact that it is absolutely necessary for him to use every possible means to keep his mouth free from every trace of white deposit (mucigen plaques). If this can be accomplished, we shall have succeeded in establishing a condition which is practically clean equivalent to the physiologically clean mouth.

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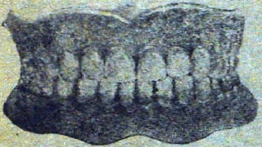

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